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How the new grading standards fit industry needs

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Summary

The new yield grading system provides the sheep industry with an excellent resource to better meet specific needs of lamb users and consumers. Almost any lamb finished in the U.S. can produce a lean carcass. However, the weight at which a lamb reaches a specific level of finish (i.e., YG) is a function of genetics, nutrition, sex of the animal, and management. For example, there are some lambs which qualify as a YG 2 at 105 lb, whereas others can be taken to 135 lb with the same degree of leanness. To consistently produce lean lambs which fit the industry weight demands, some producers may need to consider altering flock genetics and/or nutritional management. Others may simply choose to sell their lambs at lighter weights.

Introduction

Consumers demand leaner cuts of lamb and retailers have requested more uniformity in lamb carcass characteristics for them to better serve their clientele. With the annual per capita lamb consumption in the U.S. at slightly more than 1.0 lb, meeting and enhancing consumer demand is critical.

Recent Lamb Market Conditions

Heavy finished lambs have been in demand at the market place over the past few years, with the highest market prices for lambs weighing 115 to 135 lb, often heavier. Since 1975, the average finished lamb weight in the

U.S. has increased 22 lb, from 104 to 126. This industry trend likely reflects both consumer preference for larger cuts of lamb and a shift in packer merchandising practices from whole carcasses to a boxed lamb trade. Producers have pushed lambs into the aforementioned weight range to compete for the highest market price. Many lamb to finish producers and lamb feeders have successfully met the industry challenge to increase finished lamb market weight. Yet do all lambs produced in the U.S. when fed to 125 or 135 lb retain the desired carcass leanness to meet consumer demands for lean cuts of meat? The answer is no. According to the "1989 Market Basket Survey of Lamb at Retail" study report, the average fresh lamb cut offered in major U.S. cities contained too much fat, especially seam fat.

Who is responsible to provide the type of product which enhances consumer demand? The answer is every segment of the U.S. sheep industry: retailers, breakers, packers, feeders, and producers. A strong commitment from each segment is needed to make the demand for lamb stronger. The new USDA lamb grading program offers a common ground to work with at each segment.

New USDA Lamb Grading Program

Since July 6, 1992, it is mandatory that all USDA graded lamb carcasses carry a quality grade and a yield grade. USDA lamb grading standards for quality and yield grading have been available for many years. However, they have not been "coupled" in the past.

USDA Quality Grades. USDA quality grades for lamb are Prime, Choice, Good, and Utility. Quality grades are based on subjective evaluation of the lean quality characteristics and carcass conformation which in turn correspond to consumer acceptability. More than 90% of all lamb carcasses are classified as either USDA Choice or Prime, indicating that the majority of lamb products have high consumer acceptability. Yet quality grading does not account for differences in carcass leanness.

USDA Yield Grades. The USDA yield grading system offers the sheep industry a set of standardized guidelines to better meet the specifications generated from consumers and retailers. We can now describe in an objective manner the difference between a "lean" and "fat" lamb.

The current USDA lamb yield grades are YG 1 to 5. The yield grading system is based on the fat depth measured over the loin eye at the 12-13th rib location on carcasses.

USDA yield grade	Fat depth (12-13th rib)	% cuta- bility
YG 1	.00 to .15 in.	51.0
YG 2	.16 to .25 in.	49.7
YG 3	.26 to .35 in.	48.4
YG 4	.36 to .45 in.	47.1
YG 5	.46 and up	45.8

In essence, yield grades categorize carcasses according to leanness. Leaner carcasses have higher "cutability," or simply a higher yield of red meat per pound of carcass. The most desirable lamb carcasses fall into the YG 2 classification. Extremely thin carcasses, particularly those with less than .1 in. fat depth, do not maintain good quality characteristics through transit, thus reducing retail shelf life. Often the retail cuts of lamb from YG 4 and 5 carcasses do not meet consumers' demand for leanness due to an excessive amount of seam fat, even if the external fat cover is closely trimmed.

Producing Lean Lambs Using Target Market Weights

Few producers would be expected to accurately determine the yield grade on each and every lamb they sell. However, most know the breeds and the mature weight of ewes and rams in the flock. Fortunately, this information can be used to help producers quickly predict the target market weights on their lambs to avoid overfatness, YG 4 or higher. It has been suggested by Dr. Eric Bradford of the University of California-Davis that wether and ewe lambs should be marketed at a maximum of 60 to 67% of the average mature weight for ewes of the sire and dam breeds to meet the fat depth criteria for yield grade 2. Table 1 presents target market weights for ewe and wether lambs produced by sire and dam breeds of varying mature weights. The numbers in the table are 64% of the average weight of the mature ewes of both the sire and dam breeds. This table can be used as a guide when straightbred or crossbred ewes or rams are used. For example, lambs from Finn x Targhee ewes (estimated mature weight = (130 + 170)/2 = 150) and Suffolk rams (estimated mature weight = 220) should be marketed at approximately 118 lb to avoid overfatness. The values derived from this table are only a guide, but they should serve as a resource producers can use to better understand whether the lambs currently produced fit into a desirable weight range and yield grade. Essentially the lamb target weight concept is based on the relationship between sire and dam frame-size.

Role of Lamb Frame-size in Lean Lamb Production

Research has shown that lamb frame-size has a tremendous influence on the ideal market weight for lambs which are fed to meet specific levels of carcass leanness. Lamb feeding trials conducted at Colorado State University showed that the ideal finished weights for small, medium, and large frame lambs increased by nearly 10 lb between each frame-size when compared at the same degree of carcass leanness (Table 2). As

Table 1. Target slaughter weights for optimum fatness for ewe and wether lambs produced from sire and dam breeds of varying mature weights (ewe weights used in determining breed weight)

Ewe breed mature wt	Sire Breed Mature Weight (lb)												
	230	220	210	200	190	180	170	160	150	140	130	120	110
230	147	144	141	138	134	131	128	125	122	118	115	112	109
220	144	141	138	134	131	128	125	122	118	115	112	109	106
210	141	138	134	131	128	125	122	118	115	112	109	106	102
200	138	134	131	128	125	122	118	116	112	109	106	102	99
190	134	131	128	125	122	118	115	112	109	106	102	99	96
180	131	128	125	122	118	115	112	109	106	102	99	96	93
170	128	125	122	118	115	112	109	106	102	99	96	93	90
160	125	122	118	115	112	109	106	102	99	96	93	90	86
150	122	116	115	112	109	108	102	99	96	93	90	86	83
140	118	115	112	109	106	102	99	96	93	90	86	83	80
130	115	112	109	106	102	99	96	93	90	86	83	80	77
120	112	109	106	102	99	96	93	90	86	83	80	77	74
110	109	106	102	99	96	93	90	86	83	80	77	74	70

Estimates of average mature ewe weight for some U.S. breeds: 220-Suffolk; 210-Hampshire; 200-Columbia; 180-Oxford, Shropshire; 170-Border Leicester, Montadale, Targhee; 160-Corriedale, Dorset, Lincoln, Rambouillet, Texel; 150-Coopworth, North Country Cheviot, Perendale, Polypay, Romney; 140-Clun Forest, Merino, Romanov, Southdown, St. Croix; 130-Cheviot, Finsheep; 120-Barbados.

Table 2. Live weight at which small, medium, and large framed lambs produced carcasses with specified levels of external fat thickness

Frame size	Fat thickness, in.		
	.15	.25	.35
	Yield grade		
	1.9	2.9	3.9
Ewes			
Small	89	109	130
Medium	93	116	140
Large	104	134	165
Wethers			
Small	92	116	140
Medium	97	126	154
Large	109	140	170

lambs become more mature, muscle and bone growth slows and fat deposition increases. This process occurs at lighter weights in small framed compared to larger framed lambs. In addition, the amount of feed required to generate 1 lb of fat is much higher than for 1 lb of muscle. Thus, a larger framed lamb has an advantage in the conversion of feed energy to weight gain (i.e.,

feed efficiency), especially when compared at heavier weights. Along with better feed efficiency, I would also expect higher growth performance (i.e., average daily gain) and a lower cost of weight gain. The majority of lambs produced in the U.S. have the genetic potential to marketed as a "lean" lamb. However, the ideal market weight as measured by carcass leanness is likely a function of frame-size.

Can Nutritional Management Impact Lean Lamb Production

Currently, most lambs are finished on high grain diets, usually on a self-fed basis. These practices have given the lamb feeder an economical means of finishing lambs and the fewest days on feed. Under these conditions some lambs become overfat before they reach the projected market weight. To avoid this problem, many people in the sheep industry have suggested feeding lower energy diets, higher forage and lower grain, to alter the length of the feeding period required for lambs to reach a specified weight.

Researchers from Colorado State University and Texas A and M University conducted a lamb feeding trial using four dietary

levels of grain, ranging from 30 to 100%. They reported that attempts to modify external carcass fatness by altering the level of grain in the diet were not effective. As the level of grain in the diet decreased, growth performance and feed efficiency declined and the number of days on feed and cost of gain increased. Lambs fed the 30% grain diet required nearly 4 more weeks on feed than lambs receiving a diet containing either 80 or 100% grain to reach the same weight. External carcass fatness was not different among the lambs from these treatment groups. The

information from this study would indicate that under typical feedlot conditions high forage diets offer no economic or carcass merit advantages.

Delaying the finishing period by backgrounding lambs on crop residue or pasture to develop the lambs' frame may be an alternative feeding management strategy. However, the opportunity to background lambs is somewhat seasonal and perhaps limited by the number of operations willing to provide this service.